IN THE UNITED STATES PATENT AND TRADEMARK OFFICE BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

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SEP 0 8 2006	(Attorney Docket No. 1639)
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In re the Application of:)	
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	Dae-Sik Oh)	
)	Group Art Unit: 2618
Serial No.:	09/871,081)	-
)	Examiner: Raymond B. Dear
Filed:	May 31, 2001)	-
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For:	Method and System for Location-)	
	Based Power Control in)	
	Wireless Communications)	

APPEAL BRIEF

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I. Real Party in Interest

The real party in interest is Sprint Spectrum L.P., to which this invention is assigned.

II. Related Appeals and Interferences

Applicant is not aware of any related appeals or interferences.

III. Status of Claims

Claims 1-3, 6-13, 16-20, and 24-25 are pending and stand rejected. Claims 4, 5, 14, 15, 21-23, and 26-28 were previously canceled. The rejection of claims 1-3, 6-13, 16-20, and 24-25 is being appealed. A clean set of the pending claims is attached in the Claims Appendix beginning at page 12.

IV. Status of Amendments

No amendments were filed subsequent to the final rejection mailed June 28, 2006.

V. Summary of Claimed Subject Matter

Of the currently pending claims, claims 1, 7, 16, and 24 are independent. Claims 2, 3, and 6 are dependent on claim 1. Claims 8-13 are dependent on claim 7. Claims 17-20 are dependent on claim 16. Claim 25 is dependent on claim 24.

Claim 1 is directed to a method of controlling power used for communication between a mobile station and a base station. The method comprises the steps of: (i) the base station determining a location of the mobile station when the mobile station is going to engage in a call (see Specification, p. 12, lines 1-2, p. 14, lines 3-13, p. 18, lines 3-7); (ii) based on the location, the base station selecting an initial power level of a primary communication channel for communication from the mobile station to the base station (see Specification, p. 8, lines 14-17, p. 9, lines 8-10, p. 12, lines 2-3, p. 14, lines 14-18, p. 18, lines 3-7); (iii) starting at the initial power

level, engaging in a power control process that regulates the power of the primary communication channel used for communication from the mobile station to the base station (*see* Specification, p. 9, lines 1-5, p. 12, lines 3-4, p. 14, lines 19-22, p. 15, line 11 - p. 17, line 4); (iv) the base station detecting a changed location of the mobile station (*see* Specification, p. 8, lines 19-22, p. 12, lines 4-5, p. 15, lines 1-6, p. 18, lines 3-7); (v) in response to detecting the changed location, the base station interrupting the power control process (*see* Specification, p. 15, lines 8-10, p. 18, lines 3-7); (vi) based on the changed location, the base station selecting a new initial power level (*see* Specification, p. 8, lines 20-22, p. 12, lines 4-5, p. 18, lines 3-7); and (vii) starting at the new initial power level, engaging in a new power control process that regulates the power of the primary communication channel used for communication from the mobile station to the base station (see Specification, p. 15, lines 1-3 and 8-10).

Claim 7 is directed to a method of controlling power of a primary communication channel for communications between a mobile station and a base station. The method comprises the steps of: (i) determining a location of the mobile station (*see* Specification, p. 9, lines 8-9, p. 12, lines 1-2, p. 14, lines 3-13); (ii) based on the location, the base station selecting a reverse link setpoint and an initial transmit power for the mobile station on the primary communication channel (*see* Specification, p. 8, lines 14-17, p. 12, line 12 – p. 13, line 3, p. 14, lines 14-18, p. 18, lines 3-7); (iii) sending to the mobile station an instruction to use the initial transmit power (*see* Specification, p. 9, lines 1-2, p. 15, lines 11-17); and (iv) adjusting mobile station transmit power on the primary communication channel so that a mobile station signal-to-noise ratio matches the reverse link setpoint (*see* Specification, p. 9, lines 17-20, p. 15, line 18 – p. 16, line 4).

Claim 16 is directed to a method of controlling power of communications between a mobile station and a base station. The method comprises the steps of: (a) determining a location of the mobile station (*see* Specification, p. 9, lines 8-9, p. 12, lines 1-2, p. 14, lines 3-13); (b) based on the location, the base station selecting a setpoint and a mobile station transmit power on a primary communication channel (*see* Specification, p. 8, lines 14-17, p. 12, line 12 – p. 3, line 3, p. 14, lines 14-18, p. 18, lines 3-7); (c) instructing the mobile station to transmit at the mobile station transmit power on the primary communication channel (*see* Specification, p. 9, lines 1-2, p. 15, lines 11-17); (d) computing an energy-to-noise measure for a signal received from the mobile station (*see* Specification, p. 15, lines 18-20, p. 16, lines 11-13); (e) determining if the energy-to-noise measure matches the setpoint (*see* Specification, p. 9, lines 18-20, p. 15, line 20 - p. 16, line 4, p. 16, lines 13-18); and (f) in response to a determination that the energy-to-noise measure does not match the initial setpoint, instructing the mobile station to adjust the mobile station transmit power (*see* Specification, p. 9, lines 17-20, p. 15, line 22 – p. 16, line 3, p. 16, lines 14-17).

Claim 24 is directed to a power control system comprising: (i) a database that correlates locations with initial power levels (*see* Specification, p. 8, lines 18-19, p. 11, lines 8-26); (ii) a base station controller (BSC) with access to said database (*see* Specification, p. 8, lines 18-19, p. 12, lines 2-3, p. 14, lines 14-16); (iii) the BSC being configured so that when a mobile station is going to engage in a call, the BSC determines a location of the mobile station, selects from the database an initial power level based on the location of the mobile station, and instructs the mobile station to transmit at the initial power level (*see* Specification, p. 12, lines 1-4, p. 14, lines 3-22, p. 15, lines 11-15); and (iv) the BSC being further configured so that the BSC continually

monitors the location of the mobile station and, in response to detecting a new location of the mobile station, the BSC selects from the database a new initial power level based on the new location of the mobile station and instructs the mobile station to transmit at the new initial power level (*see* Specification, p. 8, lines 19-22, p. 15, lines 1-10).

VI. Grounds of Rejection to be Reviewed on Appeal

Claims 1-3, 6, and 24 stand rejected under 35 U.S.C. § 103(a) as being allegedly obvious over U.S. Patent No. 6,845,246 (Steer) in view of U.S. Patent No. 5,940,743 (Sunay).

Claims 7-8 and 13 stand rejected under 35 U.S.C. § 103(a) as being allegedly obvious over Steer in view of Sunay, and in further view of U.S. Patent No. 6,490,460 (Soliman).

Claims 9-12 stands rejected under 35 U.S.C. § 103(a) as being allegedly obvious over Steer in view of Sunay and in further view of Soliman, and further in view of U.S. Patent No. 6,763,244 (Chen).

Claims 16-20 stand rejected under 35 U.S.C. § 103(a) as being allegedly obvious over Chen in view of Steer and in further view of Soliman.

Claim 25 stands rejected 35 U.S.C. § 103(a) as being allegedly obvious over Steer in view of Sunay and further in view of U.S. Patent No. 6,603,976 (Amirjoo).

VII. Argument

A. The Examiner Erred in Rejecting Claims 1-3, 6, and 24 as Being Obvious over a Combination of Steer and Sunay

These rejections under 35 U.S.C. § 103(a) are improper, because the Examiner has failed to establish a *prima facie* case of obviousness of the claims over a combination of Steer and Sunay. In order to establish a *prima facie* case of obviousness over a combination of references, the combination must teach or suggest all of the claim limitations. M.P.E.P. § 2143.03; *In re*

Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). In this case, however, even if Steer and Sunay were to be combined together, the resulting combination would still fail to teach or suggest all of the limitations recited in claims 1-3, 6, and 24.

Of these claims, claims 1 and 24 are independent. With respect to claim 1, Steer in view of Sunay does not teach or suggest: (1) "in response to detecting the changed location, the base station interrupting the power control process"; and (2) "based on the changed location, the base station selecting a new initial power level." With respect to claim 24, Steer in view of Sunay does not teach or suggest: "the BSC being further configured so that ... in response to detecting a new location of the mobile station, the BSC selects from the database a new initial power level based on the new location of the mobile station."

These elements in claims 1 and 24, which are lacking in Steer in view of Sunay, are discussed separately below.

1. Steer in view of Sunay does not teach or suggest "in response to detecting the changed location, the base station interrupting the power control process," as recited in claim 1

The Examiner has alleged that Steer (at col. 11, lines 48-67 and col. 12, lines 1-7) teaches "interrupting" the power control process by limiting the maximum range of increase in transmit power. See Final Office Action, p. 2. Steer teaches this "limiting" as a way to address the problem of a "deep fade," which is when a received signal (e.g., a signal from a mobile station) momentarily disappears almost to nothing. See Steer, col. 11, lines 48-54. According to Steer, a typical power control process will try to compensate for a "deep fade" by increasing transmit power as much as possible. See Steer, col. 11, lines 54-58. However, the increase in power will typically be insufficient and will instead cause other problems. See Steer, col. 11, lines 58-61.

Steer's solution is to *limit* the maximum allowed power to a level that is no more than two standard deviations above the nominal value for the mobile station's location. *See* Steer, col. 12, lines 4-11.

However, Steer's limiting of transmit power (what the Examiner has described as "interrupting") is not done "in response to detecting the changed location," as recited in claim 1. As noted above, the limiting in Steer is done to address a "deep fade" in the received signal from a mobile station, not in response to detecting a changed location of the mobile station. Moreover, Steer states explicitly what causes the limit to be applied:

This limit would be applied whenever the power control process reaches a threshold based on the user's requested QoS, and the sensitivity of other traffic to interference.

See Steer, col. 12, lines 13-16. This description of when the limit would be applied makes no reference to detecting a changed location of the mobile station.

Accordingly, even if Steer's limiting were to be viewed as "interrupting the power control process," as the Examiner has alleged, the "interrupting" is not done "in response to detecting the changed location." For this reason alone, the Examiner's rejection of claim 1 over Steer in view of Sunay is clearly erroneous.

2. Steer in view of Sunay does not teach or suggest "based on the changed location, the base station selecting a new initial power level," as recited in claim 1

The Examiner has made clear that "Steer, as set forth above, is cited to teach a base station selecting a new power level based on a change in location." See Final Office Action, p. 3.

The "as set forth above," refers to the Examiner's argument on the previous page regarding the

The term "QoS" means "Quality of Service," which refers to the user's selected bit rate and desired maximum error rate. See Steer, col. 8, lines 61-63.

"power control map information" in Steer. In particular, the Examiner asserted that "the mobile station uses this map and location information to adjust the transmit power," citing to col. 7, lines 66-67 and col. 8, lines 1-10 of Steer. *See* Final Office Action, p. 2.

However, claim 1 recites that it is the *base station*, not the *mobile station*, that selects a new initial power level. Thus, the Examiner has actually admitted that Steer does not teach "the *base station* selecting a new initial power level," as recited in claim 1. For this reason also, the Examiner's rejection of claim 1 over Steer in view of Sunay is clearly erroneous.

3. Steer in view of Sunay does not teach or suggest "the BSC being further configured so that ... in response to detecting a new location of the mobile station, the BSC selects from the database a new initial power level based on the new location of the mobile station," as recited in claim 24

Claim 24 recites, *inter alia*, "the BSC being further configured so that ... in response to detecting a new location of the mobile station, the BSC selects from the database a new initial power level based on the new location of the mobile station." The Examiner has alleged that Steer teaches this element, citing to col. 7, lines 66-67 and col. 8, lines 1-10 and 23-25. See Final Office Action, p. 7. However, this section refers to a *mobile station*, not a *BSC*, using the "power control map" to select a transmit power level based on location. Indeed, even the Examiner has admitted that this section teaches that "the mobile station uses this map and location information to adjust transmit power." See Final Office Action, p. 2.

Accordingly, the Examiner's rejection of claim 24 as being obvious over Steer in view of Sunay is clearly erroneous.

B. The Examiner Erred in Rejecting Claims 7-8 and 13 as Being Obvious over a Combination of Steer, Sunay, and Soliman

These rejections under 35 U.S.C. § 103(a) are improper, because the Examiner has failed

to establish a prima facie case of obviousness of the claims over a combination of Steer, Sunay,

and Soliman. In order to establish a prima facie case of obviousness over a combination of

references, the combination must teach or suggest all of the claim limitations. M.P.E.P. §

2143.03; In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). In this case, however, even if

Steer, Sunay, and Soliman were to be combined together, the resulting combination would still

fail to teach or suggest all of the limitations recited in claims 7-8 and 13.

Of these claims, claim 7 is independent. Claim 7 recites, inter alia, "adjusting mobile

station transmit power on the primary communication channel so that a mobile station signal-to-

noise ratio matches the reverse link setpoint." The Examiner has acknowledged that Steer in

view of Sunay does not teach this element. See Final Office Action, p. 9. Instead, the Examiner

has relied on Soliman. See Final Office Action, pp. 3 and 9.

In particular, the Examiner has asserted that in Soliman, "[a] closed power control loop

adjusts the power upward or downward such that a particular setpoint value such as an SIR or

SNR is maintained or matched." See Final Office Action, p. 3. However, Soliman's description

of power control loops is contrary to the Examiner's assertion. Soliman does not teach matching

a signal-to-noise ratio (SNR) to a setpoint but, rather, maintaining the SNR between two limits.

For example, Soliman describes a power control loop that maintains the reverse link SNR

between a minimum and maximum desired levels:

A different power control loop is similarly used to maintain the received signal to noise ratio of signals sent on the reverse link (i.e., the SNR measured at the base station of signals sent from the mobile station to the base station) between a

minimum desired level and a maximum desired level.

(col. 1, lines 28-34)(emphasis added).

Because Soliman teaches maintaining the SNR between two levels, rather than matching the SNR to a setpoint, the Examiner's Steery/Sunay/Soliman combination does not teach or suggest "adjusting mobile station transmit power on the primary communication channel so that a mobile station signal-to-noise ratio matches the reverse link setpoint," as recited in claim 7.

C. The Examiner Erred in Rejecting Claims 9-12 as Being Obvious over a Combination of Steer, Sunay, Soliman, and Chen

Claims 9-12 depend from claim 7. As discussed above, the combination of Steer, Sunay, and Soliman fails to teach or suggest all of the limitations of claim 7. Chen does not make up for the deficiencies in the Steer/Sunay/Soliman combination. Moreover, if an independent claim is nonobvious, then any claim depending therefrom is nonobvious. MPEP § 2143.03, citing *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). Thus, the Examiner's rejection of claims 9-12 is improper for at least the same reasons that the Examiner's rejection of claim 7 is improper.

D. The Examiner Erred in Rejecting Claims 16-20 as Being Obvious over a Combination of Chen, Steer, and Soliman

These rejections under 35 U.S.C. § 103(a) are improper, because the Examiner has failed to establish a *prima facie* case of obviousness of the claims over a combination of Chen, Steer, and Soliman. In order to establish a *prima facie* case of obviousness over a combination of references, the combination must teach or suggest all of the claim limitations. M.P.E.P. § 2143.03; *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). In this case, however, even if Chen, Steer, and Soliman were to be combined together, the resulting combination would still fail to teach or suggest all of the limitations recited in claims 16-20.

Of these claims, claim 16 is independent. Claim 16 recites, *inter alia*, "based on the location, the base station selecting a setpoint." The Examiner has acknowledged that Chen in view of Steer does not teach this element. *See* Final Office Action, p. 14. Instead, the Examiner

has relied on Soliman. However, as discussed above for claim 7 (see Section VII.B), Soliman teaches maximum and minimum SNR values, not setpoints. The SNR values in Soliman are not setpoints because the mobile station's SNR is not *matched* to either the maximum or minimum value but, rather, is kept *between* the maximum and minimum values. In contrast, the method of claim 16 attempts to match the energy-to-noise measure to the setpoint, as indicated by steps (e) and (f).

Because Soliman teaches maximum and minimum values, rather than a setpoint, the Examiner's Chen/Steer/Soliman combination does not teach "based on the location, the base station selecting a setpoint," as recited in claim 16.

E. The Examiner Erred in Rejecting Claim 25 as Being Obvious Over a Combination of Steer, Sunay, and Amirjoo

Claim 25 is dependent on claim 24. As discussed above, the combination of Steer and Sunay fails to teach or suggest all of the limitations of claim 24. Amirjoo does not make up for the deficiencies in the Steer/Sunay combination. Moreover, if an independent claim is nonobvious, then any claim depending therefrom is nonobvious. MPEP § 2143.03, citing *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). Thus, the Examiner's rejection of claims 9-12 is improper for at least the same reasons that the Examiner's rejection of claim 24 is improper.

F. Conclusion

Applicant has demonstrated that the rejections of claims 1-3, 6-13, 16-20, and 24-25 are in error as a matter of law. Applicant therefore requests reversal of the rejections and allowance of all pending claims in this application.

Respectfully submitted,

Date: September 8, 2006

By:

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VIII. CLAIMS APPENDIX

1. (previously presented) A method of controlling power used for communication between a

mobile station and a base station, the method comprising:

the base station determining a location of the mobile station when the mobile station is

going to engage in a call;

based on the location, the base station selecting an initial power level of a primary

communication channel for communication from the mobile station to the base station;

starting at the initial power level, engaging in a power control process that regulates the

power of the primary communication channel used for communication from the mobile station to

the base station;

the base station detecting a changed location of the mobile station;

in response to detecting the changed location, the base station interrupting the power

control process;

based on the changed location, the base station selecting a new initial power level; and

starting at the new initial power level, engaging in a new power control process that

regulates the power of the primary communication channel used for communication from the

mobile station to the base station.

2. (previously presented) The method of claim 1, wherein the base station selecting an initial

power level of a primary communication channel for communication from the mobile station to

the base station comprises:

the base station referring to a database that correlates locations with initial power levels;

and

the base station selecting from the database an initial power level that is correlated with

the location.

3. (previously presented) The method of claim 2, wherein engaging in a power control process

that regulates the power of the primary communication channel used for communication from the

mobile station to the base station comprises:

the base station sending to the mobile station an instruction to transmit at the selected

initial power level,

whereby the mobile station responsively transmits at the selected initial power level.

4. (canceled)

5. (canceled)

6. (original) A base station programmed to perform the functions of claim 1.

7. (currently amended) A method of controlling power of a primary communication channel for communications between a mobile station and a base station, the method comprising:

determining a location of the mobile station;

based on the location, the base station selecting a reverse link setpoint and an initial transmit power for the mobile station on the primary communication channel;

sending to the mobile station an instruction to use the initial transmit power; and adjusting mobile station transmit power on the primary communication channel so that a mobile station signal-to-noise ratio matches the reverse link setpoint.

- 8. (original) The method of claim 7, wherein selecting a reverse link setpoint comprises: referring to a database that correlates locations with reverse link setpoints; and selecting from the database a reverse link setpoint that is correlated with the location.
- 9. (previously presented) The method of claim 7, wherein adjusting mobile station transmit power on the primary communication channel so that a mobile station signal-to-noise ratio matches the reverse link setpoint comprises:

measuring an energy level, E_b, of a signal received from the mobile station;

based on the energy level and an estimate of air interface noise, N_o , computing a measured value of E_b/N_o ;

comparing the measured value of E_b/N_o with the reverse link setpoint; and

if the measured value of E_b/N_o does not match the reverse link setpoint, sending to the

mobile station an instruction to adjust the mobile station transmit power on the primary

communication channel.

10. (previously presented) The method of claim 7, further comprising:

receiving a signal at the base station from the mobile station;

measuring a frame error rate of the signal;

comparing the measured frame error rate to a threshold frame error rate;

if the measured frame error rate does not match the threshold frame error rate, adjusting

the reverse link setpoint;

using the adjusted reverse link setpoint as a basis to manage mobile station transmit

power on the primary communication channel.

11. (original) The method of claim 10, further comprising:

based on the location, selecting a bounding value for a reverse link setpoint;

using the bounding value as a basis to limit the reverse link setpoint.

12. (previously presented) The method of claim 11, wherein selecting a bounding value for a

reverse link setpoint comprises:

referring to a database that correlates locations with bounding values of reverse link

setpoints; and

selecting from the database a reverse link setpoint that is correlated with the location.

13. (original) A base station programmed to perform the functions of claim 7. 14. (canceled) 15. (canceled) 16. (previously presented) A method of controlling power of communications between a mobile station and a base station, the method comprising the following steps: (a) determining a location of the mobile station; (b) based on the location, the base station selecting a setpoint and a mobile station transmit power on a primary communication channel; (c) instructing the mobile station to transmit at the mobile station transmit power on the primary communication channel; (d) computing an energy-to-noise measure for a signal received from the mobile station; (e) determining if the energy-to-noise measure matches the setpoint; and (f) in response to a determination that the energy-to-noise measure does not match the initial setpoint, instructing the mobile station to adjust the mobile station transmit power. 17. (original) The method of claim 16, further comprising: (g) monitoring an error rate of signals received from the mobile station;

(h) determining if the error rate matches a predetermined threshold;

(i) in response to a determination that the error rate does not match the predetermined threshold, adjusting the setpoint. 18. (original) The method of claim 17, further comprising: periodically repeating steps (d)-(f) and (g)-(i). 19. (original) The method of claim 18 further comprising: detecting a new location of the mobile station; and repeating steps (b)-(f) based on the new location. 20. (original) A base station programmed to perform the functions of claim 16. 21. (canceled) 22. (canceled) 23. (canceled) 24. (previously presented) A power control system comprising: a database that correlates locations with initial power levels; and

that when a mobile station is going to engage in a call, the BSC determines a location of the

a base station controller (BSC) with access to said database, the BSC being configured so

mobile station, selects from the database an initial power level based on the location of the

mobile station, and instructs the mobile station to transmit at the initial power level, the BSC

being further configured so that the BSC continually monitors the location of the mobile station

and, in response to detecting a new location of the mobile station, the BSC selects from the

database a new initial power level based on the new location of the mobile station and instructs

the mobile station to transmit at the new initial power level.

25. (previously presented) The power control system of claim 24, further comprising:

a mobile positioning center (MPC), wherein the BSC queries the MPC to determine the

location of the mobile station.

26. (canceled)

27. (canceled).

28. (canceled)

IX. EVIDENCE APPENDIX

None.

X. RELATED PROCEEDINGS APPENDIX

None.